

Listing of the Claims

Claims 1-2 (Cancelled).

5 3. (Currently Amended) An emitter, comprising:

an electron source;

a cathode having an emissive surface;

a continuous anisotropic conductivity layer disposed between the electron source and the emissive surface of the cathode wherein the anisotropic

10 conductivity layer has an anisotropic sheet ~~resistance~~ resistivity profile;

a tunneling layer disposed between the anisotropic conductivity layer and the cathode; and

an emissive layer disposed between the tunneling layer and the anisotropic conductivity layer.

15 Claims 4-8 (Cancelled).

9. (Previously Presented) An emitter, comprising:

an electron source;

20 a cathode having an emissive surface; and

a continuous anisotropic conductivity layer disposed between the electron source and the emissive surface of the cathode wherein the anisotropic conductivity layer has an anisotropic sheet resistance profile wherein the anisotropic conductivity layer has a length, width and thickness and wherein the sheet resistivity of the anisotropic conductivity layer in the thickness direction is less than the sheet resistivity of the anisotropic conductivity layer in the length and width directions by about at least 2 times, and wherein the sheet resistivity of the anisotropic conductivity layer in the thickness direction is about 1×10^7 to about 1×10^{10} ohm centimeters.

30 Claims 10-12 (Cancelled).

13. (Currently Amended) An emitter, comprising:

an electron source;

a cathode having an emissive surface; and

a continuous anisotropic conductivity layer disposed between the electron
5 source and the emissive surface of the cathode wherein the anisotropic
conductivity layer has an anisotropic sheet ~~resistance~~resistivity profile wherein the
anisotropic conductivity layer is formed with a columnar structure.

14. (Original) The emitter of claim 13 wherein the columnar structure is formed by
10 sputtering a resistive material.

15. (Original) The emitter of claim 14 wherein the resistive material is silicon.

16. (Original) The emitter of claim 14 wherein the resistive material is diamond-
15 like carbon.

Claims 17-18 (Cancelled).

19. (Currently Amended) An emitter, comprising:

20 an electron source;

a cathode having an emissive surface; and

a continuous anisotropic conductivity layer disposed between the electron
source and the emissive surface of the cathode wherein the anisotropic
conductivity layer has an anisotropic sheet ~~resistance~~resistivity profile wherein the
25 anisotropic conductivity layer comprises a plurality of pn junctions interconnected
by a resistive material.

Claims 20-60 (Cancelled).